



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,943	02/25/2000	Jean-Marc Alexandre	32378	6864

116 7590 08/04/2003

PEARNE & GORDON LLP  
526 SUPERIOR AVENUE EAST  
SUITE 1200  
CLEVELAND, OH 44114-1484

EXAMINER

QUASH, ANTHONY G

ART UNIT	PAPER NUMBER
----------	--------------

2881

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n No.

09/512,943

Applicant(s)

SHAHLAI ET AL.

Examiner

Anthony Quash

Art Unit

2881

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-2, 11 is/are allowed.
- 6) ☒ Claim(s) 3-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

The applicant's amendment has overcome the 112 rejections listed in the previous office action, paper number 10.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eckhardt [329] in view of Madden [866]. Eckhardt [329] discloses an electronic system able to operate under irradiation, characterized in that it comprises a first group of components (14) incorporating components which are intrinsically very vulnerable to such radiation, and possibly a few associated elements which must be physically installed in their immediate vicinity, called the first group of first components, protected against the radiation by protection means known as shielding (12), a second group (20,30,40) of second components which are less vulnerable than the first and not protected by shielding, connection means (16,26,42) between the two assemblies arranged so as not form a penetration path for ambient radiation. See Eckhardt [329] abstract, fig. 1, col. 2 lines 50-68, and col. 3 lines 1-25, and 45-55. However, Eckhardt [329] does not explicitly state shielding the components against X or gamma radiation. Madden [866]

Art Unit: 2881

teaches shielding electronic components against X or gamma radiation with dense metal. See Madden [866] col. 1 lines 30-40. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to shield the electronic components against X or gamma radiation in order to shielding electronic components against X or gamma radiation with dense metal in order prevent the distorting of electrical signals as taught in Madden [866].

Claims 3,4,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcantonio [826] in view of Madden [866]. As per claim 3, Marcantonio [826] discloses and electronic system able to operate under irradiation characterized in that it comprises a first group (12) of components incorporating components which are intrinsically very vulnerable to such radiation, and possibly a few associated elements which must be physically installed in their immediate vicinity, called the first group of first components, protected against the radiation by protection means know as shielding, a second group (27) of second components, which are less vulnerable than the first and not protected by shielding , and connection means (22) between the two assemblies arranged so as not to form a penetration path for ambient radiation. See Marcantonio [826] abstract, figs. 1-9, col. 2 lines 50-69, col. 3 lines 20-40, and col. 4 lines 15-65. However, Marcantonio does not explicitly state shielding the components against X or gamma radiation. Madden [866] teaches shielding electronic components against X or gamma radiation with dense metal. See Madden [866] col. 1 lines 30-40. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to shield the electronic components against X or gamma radiation in order to

Art Unit: 2881

shielding electronic components against X or gamma radiation with dense metal in order prevent the distorting of electrical signals as taught in Madden [866].

As per claim 4, Marcantonio [826] discloses the shield being constituted by two half-shells protecting the components. See Marcantonio [826] fig. 4 and col. 5 lines 35-60.

As per claim 10, Marcantonio [826] discloses an electrically insulating but thermally conductive product being incorporated between the first group of first components and the shield in order to remove via the shield the heat generated by the operation of the electronic components. See Marcantonio [826] fig. 4, col. 3 lines 20-40, col. 4 lines 15-40, 55-69 and col. 5 lines 35-55.

Claims 3,5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa [495] in view of Madden [866]. As per claim 3, Ishikawa [495] teaches an electronic system able to operate under irradiation characterized in that it comprises; a first group of components incorporating components which are intrinsically very vulnerable to such radiation, and possibly a few associated elements which must be physically installed in their immediate vicinity, called the first group of first components, protected against the radiation by protection means known as shielding (15). It also teaches a second components which are less vulnerable than the first. In addition, Ishikawa [495] teaches a connection means between the two assemblies arranged so as not to form a penetration path for ambient radiation. See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines

Art Unit: 2881

7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60. However, Ishikawa [495] does not specifically state that the second group not being protected by shielding. It would have been obvious to one of ordinary skill in the art at the time the invention was made to not add shielding to a second group of components that are less vulnerable to radiation in order to lesson the weight for transport. Ishikawa [495] also does not explicitly state shielding the components against X or gamma radiation. Madden [866] does teach shielding electronic components against X or gamma radiation with dense metal. See Madden [866] col. 1 lines 30-40. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to shield the electronic components against X or gamma radiation in order to shielding electronic components against X or gamma radiation with dense metal in order prevent the distorting of electrical signals as taught in Madden [866].

As per claim 5, Ishikawa [495] teaches the first group of first components also incorporating at least one microcontroller located in a shield. . See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60.

As per claim 6, Ishikawa [495] teaches the first components located within a shield are connected to an interface card by a flexible printed circuit along a baffle provided at the input/output of the shield. See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa [495] in view Madden [866] and further in view of Vail [672]. As per claim 7, Ishikawa [495] teaches the first group of first components comprising a microcontroller located within a shield and connected to interfaces, across a baffle in the shield, via flexible integrated circuits carrying supplies, a multiplexed bus belonging to the microcontroller, and control and data signals. See Ishikawa [495] abstract, figs. 1-9, col. 1 lines 5-40, 54-65, col. 2 lines 25-40, col. 3 lines 3-15, 39-65, col. 4 lines 7-30, col. 5 lines 15-25, col. 6 lines 35-40, and col. 7 lines 5-9, and 50-60. In addition, Ishikawa [495] also teaches a DC/DC converter. See fig. 7. However, Ishikawa [495] nor Madden [866] specifically state the first group of components includes an analog/digital converter. Vail [672] teaches that it was known in the art at the time the invention was made to use A/D converters in electronic systems in order to measure temperature. Vail [672] also teaches that it was known to shield A/D converters from radiation. See Vail [672] col. 1 lines 24-35. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the first group of components include an analog/digital converter shielded from radiation in order to provide a digital signal representative of the sensed temperature in space satellites as taught in Vail [672].

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa [495] in view of Madden [866] and further in view of Porter [866]. As per claim 8, Ishikawa [495] in view of Madden [866] teach all aspects of the claim except for having the first group of first components be mechanically connected to the remainder of the system by a mechanical suspension. Porter [866] does teach the first group of first

Art Unit: 2881

components being mechanically connected to the remainder of the system by a mechanical suspension. See Porter [866] abstract, fig. 1A, col. 1 lines 5-67, col. 5 lines 44-50, col. 9 lines 3-25, and col. 11 lines 25-30. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the first group of first components be mechanically connected to the remainder of the system by a mechanical suspension in order to provide protection to the electronic modules against shock and vibration during transport as taught in Porter [866].

As per claim 9, Ishikawa [495] in view of Madden [866] and further in view of Porter [866] teach all aspects of the claim except for the mechanical suspension being ensured by elastomer cores. Porter [866] does teach vibration isolators being used to ensure the mechanical suspension. See Porter [866] abstract, fig. 1A, col. 1 lines 5-67, col. 5 lines 44-50, col. 9 lines 3-25, and col. 11 lines 25-30. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use elastomer cores, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

### ***Allowable Subject Matter***

Claims 1-2, and 11 are allowable over the prior art of record. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach nor suggest all of the stages for a process to design an electronic system able to operate under irradiation as claimed in claim 1.



***R s p n s   t o   A r g u m e n t s***

Applicant's arguments with respect to claims 3-10 have been considered but are moot in view of the new ground(s) of rejection.

***C o n c l u s i o n***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Nos. 5,965,872 to Endo et al, 6,042,267 to Muraki et al, and 5,444,254 to Thomson. Endo [872] is considered pertinent because of its teaching of a photoelectric conversion device having flexible cable fixed to chassis. Muraki [267] is considered pertinent because of its teaching of an x-ray image pickup apparatus for intraoral radiography. Thomson [254] is considered pertinent because of its teaching of a flexible radiation probe.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

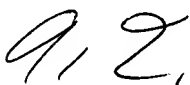
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2881


shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (703)-308-6555. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (703)-308-4116. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.



A. Quash 7/14/03



JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800